

# INDIAN PHYTOPATHOLOGY

Volume 43

## EDITORIAL BOARD

*Chief Editor*

J. P. VERMA

*Editor*

A. K. SARBHOY

*Secretary*

DINESH KUMAR

## *Members*

S. CHANDRA, Allahabad

RAM DAYAL, Varanasi

J. S. GILL, New Delhi

S. S. GNANAMANICKAM, Madras

D. C. GUPTA, Hisar

M. W. KHAN, Aligarh

C. D. MAYEE, Parbhani

S. MUKHOPADHYAY, Kalyani

A. NARAIN, Bhubaneswar

UDIT NARAIN, Kanpur

MAHENDRA PAL, New Delhi

H. R. REDDY, Bangalore

N. RISHI, Hisar

C. SEN, Kalyani

R. P. SINGH, New Delhi

H. S. SOHI, Solan

M. P. SRIVASTAVA, Hisar

P. VIDHYASEKARAN, Coimbatore

## *Advisory Board*

K. S. BHARGAVA, Lucknow

NORMAN E. BORLAUG, Texas

A. J. GIBBS, Canberra

J. G. HORSFALL, New Haven

EMIL MULLER, Zurich

S. P. RAYCHAUDHURI, New Delhi

T. S. SADASIVAN, Madras

D. N. SRIVASTAVA, New Delhi

M. S. SWAMINATHAN, Madras

R. N. TANDON, New Delhi

M. J. THIRUMALACHAR, Walnut Creek

R. D. WILCOXSON, St. Paul

1990

INDIAN PHYTOPATHOLOGICAL SOCIETY

Indian Agricultural Research Institute

New Delhi 110 012

# INDIAN PHYTOPATHOLOGICAL SOCIETY

## COUNCIL 1990

President	R. S. MEHROTRA
President-elect	H. S. SOHI
Secretary	DINESH KUMAR
Joint Secretary	Y. S. AHLAWAT
Treasurer	B. K. GIRI
Chief Editor	J. P. VERMA
Editor	A. K. SARBHOY

## ZONAL PRESIDENTS

KAMAL, <i>Gorakhpur</i>	M. V. B. RAO, <i>Hyderabad</i>
P. L. PAUL, <i>Pune</i>	S. K. SHARMA, <i>Delhi</i>
S. M. PAUL KHURANA, <i>Shimla</i>	K. SIVAPRAKASAM, <i>Madurai</i>
R. N. VERMA, <i>Shillong</i>	

## ZONAL COUNCILLORS

A. P. GAIKWAD, <i>Pune</i>	S. K. NAYAR, <i>Shimla</i>
R. R. MISHRA, <i>Shillong</i>	R. D. V. J. PRASADA RAO, <i>Hyderabad</i>
EMIL MULLER, <i>Zurich</i>	R. SAMIYAPPAN, <i>Coimbatore</i>
K. SHUKLA, <i>Gorakhpur</i>	

# TABLE OF CONTENTS

No 1, JANUARY—MARCH

PAGE

## Presidential Address

- Nematode-micro-organism interactions—an appraisal—*Gopal Swarup* .. 1

## Virology

- Approaches to control sorghum red stripe virus—*T. B. Garud, V. R. Mali, O. D. Kohire and S. D. Choudhari* .. 10
- Antiserum production and immunoelectron microscopy of potato leafroll virus—*M. N. Singh, S. M. Paul Khurana and I. D. Garg* .. 13

## Mycology

- Two new species of *Pseudocercospora* from West Bengal—*K. K. Sarbajna* .. 20
- Evaluation of powdery mildew resistance in some Indian wheats—*T. R. Sharma and B. M. Singh* .. 26

## Fungal Diseases

- Physiologic races of *Erysiphe graminis tritici* in Himachal Pradesh—*T. R. Sharma and B. M. Singh* .. 33
- Incidence of *Aspergillus flavus* in the aerosphere of maize fields at Bhagalpur—*K. S. Bilgrami and A. K. Choudhary* .. 38
- Crop growth analysis of sorghum cultivars in response to charcoal rot—*G. Koteswara Rao, K. A. Balasubramanian and E. Satya Narayana* .. 43
- Identification and designation of physiologic races of *Ascochyta rabiei* in India—*Gurdip Singh* .. 48
- Studies on variability in two *Colletotrichum* species causing anthracnose and fruit rot of chillies in Punjab—*T. S. Thind and J. S. Jhooty* .. 53
- Chemical control of ascochyta blight of chickpea—*Gurdip Singh and Maninder Singh* .. 59
- Metabolic changes in mustard due to *Alternaria* leaf blight—*S. K. Gupta, P. P. Gupta, T. P. Yadava and C. D. Kaushik* .. 64
- Studies on evolving high yielding strains of *Pleurotus sajor-caju* through hybridization—*Diwakar Bahukhandi and R. L. Munjal* .. 70
- Post-composting nutritional supplementation for increased mushroom yield—*B. L. Dhar and J. N. Kapoor* .. 74

Production of cellulases and xylanases by some thermophilic fungi— <i>N. Venkateshwarlu and S. M. Reddy</i> ..	77
Evaluation of fungitoxicans against <i>Rhizoctonia solani</i> causing seedling disease of sugarbeet— <i>S. Pandey and S. N. Srivastava</i> .	80
Effect of calixin and karathane on development of mildew epidemics on pea— <i>S. P. Mishra and Ashok Krishna</i> ..	85
<b>Short Communications</b>	
Identification of stable resistance in wheat to loose smut— <i>S. S. Aujla, A. S. Grewal, G. S. Nanda and Indu Sharma</i> ..	90
Sources of resistance in wheat to Karnal bunt— <i>S. S. Aujla, Indu Sharma and K. S. Gill</i> ..	91
Field evaluation of fungicides for control of sheath blight of rice— <i>S. R. Das and B. Mishra</i> ..	94
Changes in the concentration of total phenolic compounds in gram seeds as influenced by fungal invasion during storage— <i>S. N. Dwivedi</i> ..	96
Mycoflora of gram seed in different agro-climatic regions and their pathology — <i>S. N. Dwivedi and T. N. Shukla</i> ..	98
Management of powdery mildew of mungbean with fungicides— <i>S. R. Das and A. Narain</i> ..	100
Estimation of amino acids in resistant and susceptible varieties of cotton to <i>Myrothecium</i> leaf spot— <i>N. K. Taneja, Sheo Raj and P. K. Seth.</i>	101
Chemical control of anthracnose of urd bean in field conditions— <i>Raj Kumar and A. N. Mukhopadhyay</i> ..	102
Histopathological changes in <i>Bursera penicillata</i> due to infection by <i>Pestalotia heterocornis</i> — <i>K. Sampangiramaiah, S. S. Joshi and V. S. Seshadri</i> ..	105
Dark septate hyphae as endophytes of potato roots— <i>R. P. Rai</i> ..	107
<i>Colletotrichum acutatum</i> —a new threat to chilli crop in Punjab— <i>S. Kaur and J. Singh</i> ..	108
Seed-borne fungi of chilli with special reference to pathogenicity and control of <i>Phoma destructiva</i> — <i>A. P. Dhyani, M. C. Satiand R. D. Khulbe.</i>	110
Mode of entry and histopathological changes induced by <i>Monilinia</i> species in apple fruit— <i>R. L. Sharma and J. L. Kaul</i> ..	113
Studies on pathogenic fungi inciting guava wilt in Varanasi— <i>S. K. Dwivedi, R. S. Dwivedi and V. P. Tewari</i> ..	116
Fungicides: inhibitory agents of cell wall degrading enzymes— <i>A. Mehta, S. Chopra and P. Mehta</i> ..	117



	PAGE
New Records ..	122
News ..	125
Book Reviews ..	128

No 2, APRIL—JUNE

**Jeersannidhi Lecture**

Entomogenous fungi in India and management of insect pests—G. P. Agarwal ..	131
---	-----

**Mycology**

Three new species of <i>Phaeoramularia</i> from Uttar Pradesh—Kamal, B. K. Gupta and C. Gupta ..	143
Agaricales of eastern India-I—M. K. Das and M. P. Sinha ..	150
Fleshy fungi of north-western—Himalayas-V—R. P. Bhatt and T. N. Lakhanpal. .	156

**Fungal Diseases**

Virulence Structure of <i>Erysiphe graminis tritici</i> in Himachal Pradesh—T. R. Sharma and B. M. Singh ..	165
Development of powdery mildew on different wheat cultivars—T. R. Sharma and B. M. Singh ..	170
Efficacy of fungicides-XLVI: effect of fungicidal seed treatment against heavy inoculum pressure of certain fungi causing discolouration of paddy seeds—A. K. Misra and Dharam Vir ..	175
Pathogenic potential of seven <i>Drechslera</i> species prevalent in cereal seeds—Satvinder Kaur, A. P. S. Mann and K. S. Aulakh ..	179
Spikelet nutrients of rice and their relation to glume blight—S. K. Sugha and B. M. Singh ..	186
Stalk water potential in relation to charcoal rot of sorghum—S. M. Pedgaonkar and C. D. Mayee ..	192
Respiration and viability of stored radish seeds due to seedborne <i>Aspergillus flavus</i> —R. N. Sao, R. N. Singh, N. Narayan, S. P. Singh, S. Kumar and B. K. Prasad ..	197
Role of host resistance and planting time in progression of white rust and yield of mustard—B. S. Lakra and G. S. Saharan ..	201
Economic efficacy of different fungicides for the control of leaf spot of cauliflower—B. P. Singh, S. P. Singh and Abu Mohammad ..	207
Remote sensing for detection of wilt of <i>Erithrina</i> species—A. K. Misra and M. D. Shedha ..	210

	PAGE
<b>Short Communications</b>	
Detection of <i>Xanthomonas campestris</i> pv. <i>holcicola</i> in sorghum by dot immunobinding assay—R. D. V. J. Prasada Rao, S. K. Chakrabarty, A. S. Ratna and J. Raghava Reddy ..	213
A new species of <i>Stenella</i> from India—A. N. Rai and Kamal ..	214
<i>Oidium nyctaginacearum</i> sp. nov. from Coimbatore—V. B. Hosagoudar ..	216
<i>Gonapodya terrestris</i> sp. nov.—S. N. Dasgupta, A. K. Sarbhoy and S. K. Shome ..	218
Compatibility system in <i>Neovossia indica</i> —S. S. Aujla and Indu Sharma ..	222
Effect of soil moisture and temperature of teliospore germination of <i>Neovossia indica</i> —S. S. Aujla, Indu Sharma and K. S. Gill ..	223
Factors affecting development of blister blight of tea—S. K. Sugha, B. M. Singh and K. L. Sharma ..	226
Behaviour of <i>Colletotrichum falcatum</i> under waterlogged condition—S. K. Duttamajumder, Narendra Singh and V. P. Agnihotri ..	227
Significance of chemical control of <i>parwal</i> powdery mildew—P. P. Sinha ..	229
<i>Alternaria</i> leaf and pod blight of cauliflower—J. C. Duhan and K. S. Suhag ..	231
Occurrence of <i>Phoma</i> leaf blight of groundnut—R. K. Bansal and A. K. Sobti ..	234
Control of fruit-rot of guava by hot water treatment—J. Madhukar and S. M. Reddy ..	234
<b>New Records</b> ..	237
<b>Proceedings of 42nd Annual Meeting</b>	
Abstract of Papers ..	239
Report of Secretary for 1989 ..	317
Report of Chief Editor for 1989 ..	321
Account for 1988 ..	324
<b>Book Review</b> ..	325
<b>News</b> ..	326
No 3, JUNE—SEPTEMBER	
Obituary—S. N. Dasgupta ..	329
<b>M. S. Pavgi Lecture</b>	
Plant virology in developing countries—D. V. R. Reddy ..	331

**Virology**

- Cytoplasmic cylindrical inclusions induced by chickpea distortion mosaic virus—V. R. Mali, P. G. Markham, B. Wells, M. S. Pinner and F. S. Patil .. 340
- Effect of sorghum red stripe virus (SRSV) on leaf chlorophyll and sugar content of stalk juice in different genotypes of sorghum—P. S. Pawar, T. B. Garud, V. R. Mali and S. D. Choudhari .. 345
- Management of bell pepper mosaic disease complex in Himachal Pradesh—Subhash C. Chowfla and Prem N. Sharma .. 349

**Bacteriology**

- Isolation, characterization and screening of antagonists of *Pseudomonas tolaasii* for biological control—P. K. Khanna, J. M. Olivier, R. S. Samson and J. Guiliaumes .. 352

**Mycology**

- Studies on Loculoascomycetes : *Didymosphaeria*—Ch. Ramesh .. 361

**Fungal Diseases**

- Studies on morphology, growth habit, hyphal anastomosis and virulence pattern of five isolates of sheath blight pathogen of rice—S. K. Singh, K. Satyanarayana and A. P. K. Reddy .. 368
- Breeding downy mildew resistant sorghum varieties—H. Shivanna and K. H. Anahosur .. 372
- Studies on survival and dispersal of pigeonpea *Phytophthora*—V. S. Bisht and Y. L. Nene .. 375
- Physico-chemical alterations in *Taphrina deformans* infected peach leaves—R. C. Sharma and Y. P. Sharma .. 382
- Studies on post-harvest diseases of apricot and chemical control of whiskers rot—R. C. Sharma, J. L. Kaul and K. K. Jindal .. 385
- Relationship between utilization of sulphur and virulence among isolates of *Fusarium solani* causing wilt of cauliflower—V. C. Saxena and Rajendra Singh .. 389
- Appearance, build up and spread of late blight in relation to source of inoculum—B. P. Singh and S. K. Bhattacharyya .. 393
- Nutritional application affecting resistance to *Phytophthora parasitica* var. *piperina*—A. G. Nema .. 401
- Effect of seed-borne mycoflora on quantity and quality of mustard oil—A. Shivpuri, B. S. Siradhana and R. K. Bansal .. 404
- Control of damping-off of sugarbeet by seed treatment with metalaxyl—Indu S. Sawant and A. N. Mukhopadhyay .. 408



Vertical progression and spread of <i>Phytophthora</i> leaf infection in black pepper in areca-black pepper mixed cropping system—N. Ramachandran, Y. R. Sarma and M. Anandaraj ..	414
Induction of chlamydospore in <i>Fusarium moniliforme</i> —D. N. Mandal and S. Chaudhuri ..	420
Inter-specific sterility in <i>Coprinus</i> —a factor in biocontrol of weed fungi in mushroom bed—R. P. Purkayastha and A. K. Das ..	427
<b>Short Communications</b>	
Spread and infection rate of rice tungro virus in susceptible and tolerant rice cultivars—B. P. Yadav and M. D. Mishra ..	431
Screening of frenchbean germplasm for resistance to bean common mosaic virus—Yash Gupta and Subhash C. Chowfla ..	434
<i>Xanthomonas campestris</i> pv. <i>pruni</i> on almond leaves and fruits in India—Krishan K. Jindal, R. C. Sharma and V. K. Gupta ..	436
<i>Cosmos sulphures</i> —a new host of <i>Pseudomonas solanacearum</i> race-1 from Andamans—M. M. Ansari ..	438
Morphological differences between teliospores of <i>Neovossia indica</i> and <i>N. horrida</i> —Rashmi Aggarwal, L. M. Joshi and D. V. Singh ..	439
Effect of soil amendment with inorganic and organic sources of nitrogenous manures on the incidence of root rot and seed yield in sesamum—Amar Singh, T. P. Bhowmik and B. S. Chaudhry ..	442
Identification of stable multiple disease resistant sorghums—K. H. Anahosur, M. Lakshman and H. Shivanna ..	444
Cross inoculation studies on <i>Rhizoctonia bataticola</i> isolates from different crops—S. K. Singh and Y. L. Nene ..	446
Cultural variability among seven isolates of <i>Rhizoctonia</i> —R. K. Bansal, A. K. Sobti and S. M. Mehta ..	448
An economic remedy for the control of two species of <i>Aspergillus</i> on groundnut—R. K. Bansal and A. K. Sobti ..	451
Histopathological and histochemical changes in groundnut leaf due to infection by <i>Cercospora arachidicola</i> —G. C. Vijayakumar ..	453
Mode of perpetuation of powdery mildew of pea in North-Western India—J. S. Jhooty and G. D. Munshi ..	455
Changes in sugar and amino acid contents in stored radish seed due to <i>Aspergillus flavus</i> —B. K. Prasad, R. N. Sao, N. Narayan, R. N. Singh, A. Rahman, S. P. Singh, S. Dayal and U. Shanker ..	457
Effect of certain physical and chemical factors on the germination of endoconida and chlamydospores of <i>Thielaviopsis paradoxa</i> —Anil Kumar and K. K. N. Nambiar ..	460



	PAGE
Effect of latex of <i>Euphorbia hirta</i> on fruit rot of tomato caused by <i>Aspergillus niger</i> in the presence of <i>Drosophila busckii</i> —Purnima S. Sinha and S. K. Saxena ..	462
Existence of pathotypes in <i>Myrothecium roridum</i> —N. K. Taneja, Sheo Raj and P. K. Seth ..	464
Effect of fungicide and <i>Rhizobium</i> seed treatment on nodulation in soybean—B. P. Singh and V. K. Agarwal ..	467
A technique for artificial inoculation of pea seedling with <i>Sclerotinia sclerotiorum</i> —A. S. Kapoor, Dhanbir Singh and B. M. Singh ..	469
Effect of various treatments on paddy straw on yield of some cultivated species of <i>Pleurotus</i> —Diwakar Bahukhandi ..	471
Inhibition of growth of <i>Agaricus bisporus</i> by systemic fungicides—B. L. Dhar and J. N. Kapoor ..	473
<b>New Records</b> ..	475
<b>Book Reviews</b> ..	483
<b>News</b> ..	485

## No 4, SEPTEMBER—DECEMBER

**Virology**

Effect of tomato mosaic causing viruses on pollen viability and yield of tomatoes—B. K. Giri and M. D. Mishra ..	487
Isolation and purification of a virus infecting <i>Piper betle</i> —J. K. Johri, K. M. Srivastava, R. K. Raizada, A. L. Deshpande and B. P. Singh ..	491

**Nematology**

Development of the root-knot nematode, <i>Meloidogyne incognita</i> in <i>Vigna radiata</i> and <i>Cyamopsis tetragonoloba</i> —Soumana Datta, P. G. Trivedi and B. Tiagi ..	496
--	-----

**Fungal Diseases**

Extraction of teliospores of <i>Neovossia indica</i> from soil mixed with the teliospores—D. V. Singh, K. A. Siddiqui, R. Aggarwal, K. D. Srivastava, A. K. Maurya and P. Arora ..	500
Screening finger millet genotypes for resistance to foot-rot and smut—Y. M. Somasekhara, S. Viswanath and T. B. Anilkumar ..	504
Impact of cob husks and maturity period on aflatoxin contamination in preharvest Kharif maize—K. S. Bilgrami, A. Masood, K. S. Ranjan and A. K. Sinha ..	508

Physico-chemical characteristics of the root exudate of mustard seedlings raised from the seeds stored with <i>Aspergillus flavus</i> —A. Kishor, R. N. Singh, N. Narayan, R. N. Sao, N. P. Sinha and B. K. Prasad ..	513
Race identity of Indian <i>Plasmopara halstedii</i> , cause of downy mildew of sunflower—M. A. Patil and C. D. Mayee ..	517
Evaluation of pre-symptom activity of fungicides on symptom expression, conidia production and viability of <i>Venturia inaequalis</i> —Vijay Thakur and G. K. Gupta ..	520
Interaction between vesicular-arbuscular mycorrhizal endophyte and <i>Macrophomina phaseolina</i> in mungbean—B. L. Jalali, M. L. Chhabra and R. P. Singh ..	527
Comparison of gompertz and logistic equations to describe groundnut rust disease progress—C. D. Mayee, R. N. Sandhikar and S. V. Bulbule. .	531
Integration of metalaxyl with <i>Trichoderma harzianum</i> for the control of Pythium damping-off in sugarbeet—Indu S. Sawant and A. N. Mukhopadhyay ..	535
Production of extracellular enzymes by mesophilic fungi of mushroom compost—R. D. Rai, B. Vijay and S. Saxena ..	542
Competing mycoflora with <i>Aspergillus flavus</i> in kernels of Rabi and Kharif maize crops of Bhagalpur—K. S. Bilgrami and A. K. Choudhary ..	547
Decreased sensitivity of <i>Drechslera oryzae</i> field isolates to edifenphos—P. Annamalai and D. Lalithakumari ..	553
<b>Short Communications</b>	
Growth attributes and grain yield of mungbean plants affected by mungbean yellow mosaic virus in field—Quaiser Ahmad ..	559
Inactivation of GSD MLOs in diseased setts by heat treatment—U. S. Shukla and Vijai Singh ..	561
A new strain of <i>Streptomyces cyanoalbus</i> from Vrindawan soil—Abha Gupta and J. S. Gupta ..	563
Additions to our knowledge of the zoosporic fungi—S. N. Dasgupta and Rachel John ..	564
<i>Pyrenula corticola</i> sp. nov., a bark inhabiting ascomycete from Uttar Pradesh—R. K. Verma and Kamal ..	568
Differences in aggressiveness among isolates of <i>Tilletia foetida</i> and <i>Tilletia caries</i> —A. K. Sood and B. M. Singh ..	569
Epidemiology and basic facts of severity, yield loss and grain quality deterioration due to ear blight of wheat in Arunachal Pradesh—R. G. Chaudhary, S. Edison and Vishwadhar ..	571

Improved inoculation technique for <i>Helminthosporium</i> stripe of barley— <i>A. K. Mathur and G. C. Bhatnagar</i> . .	574
A preliminary survey of incidence of stalk-rot complex of maize in two districts of Kamataka— <i>Suseelendra Desai and R. K. Hegde</i> . .	575
Reaction of chickpea genotypes and their crosses to <i>Fusarium</i> wilt— <i>N. V.</i> <i>Shinde, R. B. Deshmukh and P. A. Shinde</i> . .	576
Residues of copper oxychloride and copper sulphate in mung— <i>Vinod Kumar</i> <i>Gaur and R. M. Shah</i> . .	579
Effects of <i>Fusarium</i> wilt on free amino acids in the progeny of healthy and infected lentil— <i>C. S. Pundir, Om Singh and H. C. Verma</i> . .	580
Three new records of diseases of betelvine— <i>J. K. Johri, R. S. Chaurasia and</i> <i>V. R. Balasubrahmanyam</i> . .	582
Aerial dissemination of <i>Ramularia gossypii</i> pathogenic to cotton— <i>M. Raghu</i> <i>Ram and K. V. Mallaiah</i> . .	583
Rhizosphere fungi of umbelliferous hosts in relation to root exudates— <i>Nishat Khalis, C. Manoharachary, K. V. Gopal and N. S. Shyam</i> <i>Sunder Rao</i> . .	586
Root rot disease of <i>berseem</i> and its control— <i>R. B. Bhaskar and S. T. Ahmad.</i> .	589
Occurrence of <i>Aphanocladium album</i> on mushroom beds— <i>S. C. Bhardwaj,</i> <i>P. K. Seth and T. R. Shandilya</i> . .	590
Cultivation of <i>Pleurotus eous</i> under Delhi conditions— <i>Diwakar Bahukhandi.</i> .	591
<b>New Records</b> . .	593
<b>Book Reviews</b> . .	596
<b>News</b> . .	598





## INDEX TO AUTHORS

Agarkar, G. D.	...	316	Bhadraiah, B.	...	258
Agarwal, D. K.	...	254	Bhajjan, S. S.	...	250, 263
Agarwal, G. P.	...	131	Bhalerao, U. T.	...	261
Agarwal, Rashmi	...	439	Bhardwaj, S. C.	...	248, 590
Agarwal, V. K.	...	467	Bhaskar, R. B.	...	589
Agarwala, R. K.	...	276	Bhatia, J. N.	...	279
Aggarwal, Ashok	...	275	Bhatnagar, G. C.	...	574
Aggarwal, R.	...	500	Bhatnagar, M. K.	...	250, 283
Agnihorti, J. P.	...	277	Bhatt, J. C.	...	267, 270
Agnihotri, V. P.	...	227	Bhatt, R. P.	...	156
Ahlawat, Y. S.	...	239	Bhattacharyya, S. K.	...	393
Ahmad, Quaiser	...	559	Bhava, P. S.	...	287
Ahmad, S. T.	...	589	Bhombe, B. B.	...	249
Ahuja, S. C.	...	277	Bhonde, S. R.	...	249
Ali, Zahid	...	268	Bhowmik, T. P.	...	442
Amin, K. S.	...	243	Bidari, V. B.	...	292
Ammeta, P.	...	258	Bilgrami, K. S.	...	38, 508, 547
Anahosur, K. H.	296, 372, 444		Bisht, G. S.	...	270
Anandaraj, M.	...	287, 414	Bisht, V. S.	...	375
Andotra, P. S.	...	281	Bobade, K. P.	...	302
Anilkumar, T. B.	...	297, 504	Borde, P. J.	...	303
Annamalai, P.	...	553	Buchale, N. N.	...	313
Annapurna, J.	...	260, 261	Bulbule, S. V.	...	310, 531
Ansari, M. M.	...	438	Chacko, C. I.	...	296
Apet, K. T.	...	311	Chakrabarty, S. K.	...	213, 250
Arora, P.	...	500	Chakraborty, N. K.	...	239
Arora, R. K.	248, 294, 296		Chandra, D. R.	...	272
Asalmol, M. N.	...	307, 308	Chandravadana, M. V.	...	298
Astaputr, J. R.	...	307	Chatrath, M. S.	...	251
Athur, M. M.	...	245	Chaudhary, R. G.	...	571
Aujla, S. S.	...	90, 91, 222	Chaudhry, B. S.	...	442
Aulakh, K. S.	...	179, 278	Chaudhuri, S.	...	420
Awasthi, M. D.	...	287	Chauhan, K. S.	...	281
Babade, K. P.	...	302	Chauhan, L. S.	...	272
Babu, Narendra G.	...	261	Chauhan, M. S.	...	278
Bagyanarayana, G.	...	248, 262	Chaurasia, R. S.	...	582
Bahukhandi, Diwaker	...	70, 471, 591	Chhabra, M. L.	249, 250, 283,	
Balasubrahmanyam, V. R.	...	582			527
Balasubramanian, K. A.	...	43	Chharia, Amar Singh	...	281
Banerjee, A. K.	...	274	Chitriv, A. J.	...	309
Bansal, R. K.	234, 404, 448		Chopra, S.	...	117
	451		Choudhari, S. D.	...	10, 345

Choudhary, A. K.	...	38, 547	Gangawane, L. V.	...	253, 313
Chowdhry, P. N.	...	253	Gangopadhya, S.	...	276
Chowdhury, H. D.	...	260	Garg, I. D.	...	13
Chowfla, Subhash C.	...	349, 434	Garg, S. K.	...	273
Dandnaik, B. P.	...	307	Garud, T. B.	...	10, 345
Das, A. K.	...	427	Gaur, Vinod Kumar	...	579
Das, Jhuma	...	251	Ghadasara, M. T.	...	248
Das, M. K.	...	150	Ghewande, M. P.	...	244
Das, S. R.	...	94, 100	Ghosh, A.	...	257
Dasgupta, S. N.	218, 329, 564		Gill, H. S.	...	277
Datar, V. V.	...	314	Gill, K. S.	...	91, 223
Datta, Soumana	...	496	Giri, B. K.	...	240, 487
Dave, H. R.	...	248	Gole, M. D.	...	314
Dayal, S.	...	457	Goltapeh, Ebrahim M.	...	254
Desai, Suseelendra	...	244, 575	Gopal, K. V.	...	586
Deshmukh, B. S.	...	315	Gopinath, K.	...	247
Deshmukh, R. B.	...	576	Gowada, Nishankara	...	287
Deshmukh, R. N.	...	305	Grewal, A. S.	...	90
Deshmukh, R. V.	...	307	Guiliaumes, J.	...	352
Deshmukh, S. S.	...	304	Gupta, Abha	...	563
Deshpande, A. L.	...	491	Gupta, B. K.	...	143
Devaiah, B. M.	...	298	Gupta, C.	...	143
Devaki, N. S.	...	298	Gupta, D. C.	...	280
Devi, K. K.	...	260	Gupta, G. K.	...	520
Devi, K. Uma	...	261	Gupta, J. P.	...	251
Devi, Radhika	...	259	Gupta, J. S.	...	563
Devi, T. Pramila	...	260	Gupta, M. K.	...	266
Dhar, B. L.	...	74, 282, 473	Gupta, N. N.	...	274
Dhindsa, H. S.	...	276, 278	Gupta, P. C.	...	277, 280
Dhyani, A. P.	...	110	Gupta, P. P.	...	64
Dubey, S. C.	...	245	Gupta, Rakesh	...	280
Duhan, J. C.	...	231	Gupta, R. P.	...	249
Duttamajumder, S. K.	...	227, 265	Gupta, S. P.	...	269
Dwivedi, Kusum	...	266	Gupta, S. K.	...	64
Dwivedi, R. P.	...	274	Gupta, U.	...	246
Dwivedi, R. S.	...	116	Gupta, V. K.	241, 281, 436	
Dwivedi, S. K.	...	116	Gupta, Yash	...	434
Dwivedi, S. N.	...	96, 98	Hapase, D. H.	...	244
Ebenezar Ponsing Malraja, E. G.	...	287	Hegde, R. K.	...	296, 575
Edison, S.	...	571	Holey, N. R.	...	245, 309
Edward, J. S.	...	290	Hooda Indra	...	279
Gadambe, D. V.	...	314	Horn, N. M.	...	254
Gahukar, K. B.	245, 306, 315		Hosagoudar, V. B.	...	216
Gaikwad, A. P.	...	313	Ingle, R. W.	...	305
Galhotra, P. P.	...	279	Ishwara-Bhat, A.	...	293
Gandhi, S. K.	...	277	Jadhav, V. T.	...	301, 303
Ganeshan, Girija	...	288, 297	Jagadeshwar, J.	...	248



Jagadish, C. A.	...	252	Khurana, S. M. Paul	...	13
Jagadish-Chandra, K.	...	239	Kishor, A.	...	513
Jagtap, V. S.	...	312	Kohire, O. D.	...	10
Jalali, Indu	...	284	Kolte, S. O.	253, 302, 316	
Jalali, B. L.	239, 249, 285,	527	Kore, S. S.	...	314
Jalikop, S. H.	...	293	Koteswara-Rao, G.	...	43
Janaki, Rani, S.	...	259	Koti-Reddy, M.	...	257
Jandaik, C. L.	...	283	Krishna-Reddy, M.	...	252
Jayaraj, J.	...	288	Krishna, Ashok	...	85
Jayaraman, Jayashree	...	256	Kulkarni, Mukund S.	...	296
Jeeva, M. L.	...	299	Kumar, Anil	...	284
Jhooty, J. S.	...	53, 455	Kumar, Anil	...	460
Jindal, K. K.	241, 385,	436	Kumar, Kishore	...	281
John, Rachel	...	564	Kumar, Kumud	...	273
John-Ravinder, E.	...	262	Kumar, Pradeep	...	273
Johri, J. K.	...	491, 582	Kumar, S.	...	197
Joseph, M. M.	...	294, 296	Kumar, Surinder	...	281
Joshi, A. K.	...	248	Kumar, J.	...	248
Joshi, L. M.	...	439	Kumar, Raj	...	102
Joshi, S. S.	...	105	Kunwar, I. K.	...	252
Kadian, O. P.	...	279, 280	Kunwar, K. Indra	...	262
Kale, K. B.	...	313	Kurundkar, B. P.	...	302
Kalode, M. B.	...	303	Lahoti, G. S.	...	311
Kamal	143, 214,	568	Lakhanpal, T. N.	...	156
Kamal-Wanshi, R. S.	...	266	Lakra, B. S.	...	284, 201
Kapoor, A. S.	...	469	Lakshman, M.	...	444
Kapoor, J. N.	...	74, 254, 283,	Lakshmi-Kant	...	271
		473	Lakshmi-Narayana, A.	...	259
Kapoor, K. S.	...	248, 277	Lakshminarayana-Rao, M. S.	...	288
Karan, D.	...	262	Lalithakumari, D.	...	553
Kardale, D. S.	...	313, 315	Lanjewar, R. D.	...	304, 315
Kareppa, B. M.	...	313	Laxminarayana, A.	...	251
Katiyar, R. R.	...	265	Londhe, G. M.	...	312
Kaul, J. L.	113, 250,	385	Lukose, C.	...	245, 248
Kaur, S.	...	108	Madan, M. S.	...	288
Kaushik, C. D.	...	64	Madhukar, J.	...	234
Kaushik, J. C.	...	281	Mahajan, S. G.	...	303
Kawale, B. R.	...	301, 310	Mahanta, P.	...	246
Khalis, Nishat	...	586	Maheshwari, S. K.	...	277, 280
Khan, Nishat	...	266	Mahmood, M.	...	242
Khan, R. M.	...	295	Majumdar, V. L.	...	277
Khanna, P. K.	...	352	Mali, V. R.	...	10, 340, 345
Khare, M. N.	...	257	Mallaiah, K. V.	...	583
Khodke, P. S.	...	314	Mandal, B.	...	292
Khodke, S. W.	...	315	Mandal, D. N.	...	420
Khulbe, R. D.	...	110	Mandhare, V. K.	...	246

Mane, B. B.	...	311	Narain, A.	...	100
Manjunath, A.	...	298	Narain, Udit	...	271, 274
Manjunath, K. L.	...	292	Narasimha-Reddy, A.	...	263
Mann, Satvinder K.	...	179, 281	Narayan, N.	...	197, 357, 513
Manoharachary, C.	...	251, 261, 259, 586	Narayan, Prem	...	244
Markha, P. G.	...	340	Narayana, K. C.	...	260
Masood, A.	...	508	Narayanaswamy, B. C.	...	295
Mathew, A. V.	...	293	Narula, K. L.	...	247
Mathur, A. K.	...	574	Naseem, M.	...	304
Mathur, S. B.	...	255	Nath, Ram	...	266
Maurya, A. K.	...	500	Nautiyal, P. C.	...	244
Mayee, C. D.	...	192, 310, 517, 531	Nayar, S. K.	...	248
Meeta, Madhu	...	245	Nayudu, M. V.	...	247
Mehrotra, R. S.	...	247, 275	Negi, S. S.	...	296
Mehta, Naresh	...	280	Nema, A. G.	...	401
Mehta, A.	...	117	Nene, Y. L.	...	243, 285, 375, 446
Mehta, N.	...	281	Nirmal, D. D.	...	301, 302
Mehta, P.	...	117	Nusarath, M.	...	250, 263
Mehta, S. M.	...	242, 448	Olivier, J. M.	...	352
Mishra, A. K.	...	267	Pal, A. B.	...	297
Mishra, Ashok	...	242	Pal, Mahendra	...	255
Mishra, B.	...	94	Pal, Vijai	...	284
Mishra, M.	...	245	Pandey, Meera	...	290
Mishra, M. D.	...	240, 431, 487	Pandey, D. K.	...	289
Mishra, S. P.	...	85	Pandey, K. N.	...	269
Misra, A. K.	...	175, 210	Pandey, S.	...	80
Mogale, T. R.	...	301	Pandey, S. C.	...	296
Moghe, P. G.	...	301	Pandey, U. B.	...	289
Mohammad, Abu	...	207	Parhate, P. L.	...	307
Mohan, Madhu	...	269	Parvatha-Reddy, P.	...	295
Mohan, N.	...	297	Patel, J. G.	...	247
Moses, G. J.	...	252	Patel, S. T.	...	247
Muheet, A.	...	272	Pathak, C. S.	...	297
Mukhopadhyay, A. N.	...	102, 408, 535	Pathak, S. C.	...	291
Muniyappa, V.	...	292, 293	Patil, A. S.	...	244
Munjali, R. L.	...	70	Patil, B. G.	...	301, 304
Munshi, G. D.	...	455	Patil, C. U.	...	305
Muralidharan, K.	...	257	Patil, D. N.	...	244
Murth, A. B. S.	...	258	Patil, F. S.	...	302, 340
Murti, G. S. R.	...	239	Patil, M. A.	...	312, 517
Nagale, S. S.	...	244	Patil, M. D.	...	301
Naik, G.	...	296	Patil, M. R.	...	311
Nambiar, K. K. N.	...	460	Patil, P. L.	...	246, 244, 308
Nanda, G. S.	...	90	Patil, V. V.	...	312
			Pawar, N. B.	...	242

Pawar, P. S.	...	345	Ramaswamy, G. R.	...	297
Pedgaonkar, S. M.	...	192, 244	Ramesh Chand	...	294
Peshney, N. L.	...	301	Ramesh, Ch.	...	361
Phad, H. B.	...	312	Rampulla Reddy, P.	...	253
Pimplakhute, A. M.	...	308	Ramtirthakar, M. S.	...	312, 313
Pinner, M. S.	...	340	Ranga Reddy, R.	...	252, 257
Potdukhe, S. R.	...	303, 311	Ranganathan, K. G.	...	288
Prajapati, K. S.	...	247	Ranjan, K. S. K. S.	...	508
Prakash-Rao, C. G.	...	258, 260	Rao, Sudarsan	...	263
Prasad, B. K.	...	197, 457, 513	Rao, Vasant	...	262
Prasad, U.	...	253, 261	Rao, M. S.	...	295
Prasad, Y.	...	271	Rao, Raghavendra	...	242
Prasada-Rao, M. P.	...	260	Rao, T. M.	...	296
Prasada-Rao, R. D. V. J.	...	213, 250	Rasal, P. H.	...	308
Prasanna, K.	...	242	Rathod, P. S.	...	303
Prashar, M.	...	248	Ratna, A. S.	...	213, 255
Prashar, R. D.	...	279, 283	Raut, J. G.	...	306, 313
Pundir, C. S.	...	580	Raut, N. K.	...	249, 309
Pundir, R. P. S.	...	243	Raut, N. R.	...	302
Purkayastha, R. P.	...	427	Ravindra, V.	...	244
Quadri, S. M. H.	...	289	Ravishankar	...	293
Raghava, S. P. S.	...	296	Rawal, R. D.	...	290, 297
Raghava-Reddy, J.	...	213	Reddy, A. P. K.	...	368
Raghavendra-Rao, N. N.	...	290	Reddy, C. S.	...	257
Raghavendra, N. N.	...	299	Reddy, D. V. R.	...	254, 331
Raghu-Ram, M.	...	583	Reddy, H. R.	...	292
Raghuveer-Rao, P.	...	260, 263	Reddy, M. V.	...	243
Rahman, A.	...	457	Reddy, P. P.	...	295
Rai, A. N.	...	214	Reddy, S. M.	...	77, 234
Rai, M.	...	266	Remanandan, P.	...	243
Rai, R. D.	...	542	Roy, B.	...	242
Rai, R. P.	...	107	Ruikar, S. K.	...	246
Raina, G. N.	...	278	Sadasiva-Reddy, C.	...	241
Raizada, R. K.	...	491	Saharan, G. S.	...	201, 281
Raj, Sheo	...	101, 464	Sahni, M. L.	...	246
Raju, T. N.	...	243	Saifulla, M.	...	298
Ram, B.	...	276	Saikh, S. A.	...	253
Ram-Kishun	...	294	Saini, L. C.	...	283
Rama Rao, P.	...	251, 258, 262	Saini, R. K.	...	278
Ramabadrar, R.	...	288, 299	Sampangiramaiah, K.	...	105
Ramachandraiah, H.	...	262	Samson, R. S.	...	352
Ramachandran, N.	...	296, 414	Sandhikar, R. N.	...	310, 531
Raman, S. V.	...	257	Sangitrao, C. S.	...	306
Ramanujam, K.	...	288, 290	Sangwan, M. S.	...	285
Ramappa, H. K.	...	293, 295	Sao, R. N.	...	197, 457, 513
Ramapulla, Reddy	...	259	Sapkal, P. N.	...	311



Sarbajna, K. K.	...	20	Sheila, V. K.	...	243
Sarbhoj, A. K.	...	218, 271	Shinkde, N. V.	...	576
Sarkar, Nandita	...	243	Shinde, N. N.	...	301, 314
Sarma, Y. R.	...	287, 414	Shinde, P. A.	...	576
Sarwar, H. A. K.	...	255	Shinde, V. K.	...	307
Satiand, M. C.	...	110	Shirshikar, S. P.	...	307
Satya-Narayana, E.	...	43	Shivankar, S. K.	...	308
Satyanarayana, K.	...	257, 368	Shivanna, H.	...	372, 444
Satya-Narayana, T.	...	247	Shivashankar, G.	...	293
Satya-Prasad, K.	...	252	Shivpuri, A.	...	404
Satyavir	...	278	Shome, S. K.	...	218
Savithri, H. S.	...	240	Shukla, D. S.	...	267
Sawant, K. L.	...	312	Shukla, P.	...	269
Sawant, S. D.	...	292	Shukla, T. N.	...	98, 268, 273
Sawant, S. Indu	...	292, 408, 535	Shukla, U. S.	...	561
Saxena, A. K.	...	290	Shukla, Vishnu	...	291
Saxena, Neeti	...	262	Shukla, V. N.	...	315
Saxena, S.	...	542	Shyam-Sunder-Rao, N. S.	...	253, 259, 586
Saxena, S. C.	...	265	Shyam, K. R.	...	245
Saxena, S. K.	...	462	Shyam, N. S.	...	586
Saxena, V. C.	...	389	Siddiqui, K. A.	...	500
Seshadri, V. S.	...	105	Sindhan, G. S.	...	278
Seth, P. K.	...	101, 464, 590	Singh, Amar	...	442
Shadakshari, Y. G.	...	298	Singh, B.	...	264
Shah, R. M.	...	579	Singh, Bhartendu	...	272
Shaikh, M. H.	...	307	Singh, B. M.	...	26, 33, 165, 170, 186, 226, 280, 469, 569
Shandilya, T. R.	...	590		...	207, 393, 467, 491
Shankara-Bhatt, S.	...	287, 298	Singh, B. P.	...	269
Shanker, U.	...	457		...	294, 296
Sharma, A. K.	...	267, 270	Singh, B. R.	...	266, 439, 500
Sharma, Indu	...	90, 91, 223	Singh, D. B.	...	469
Sharma, K. L.	...	226	Singh, D. V.	...	48, 59
Sharma, M. P.	...	250, 283	Singh, Dhanbir	...	284
Sharma, N. K.	...	280	Singh, Gurdip	...	108
Sharma, N. N.	...	290	Singh, Harnam	...	265
Sharma, N. Prem	...	349	Singh, J.	...	273
Sharma, R. C.	...	241, 382, 365, 436	Singh, Jatindra	...	268
	...	113, 250	Singh, Jitender	...	267, 269
Sharma, S. K.	...	269	Singh, Jyoti	...	249
Sharma, S. R.	...	248, 277	Singh, K. P.	...	13
Sharma, Sushil	...	276	Singh, Lallan	...	277
Sharma, T. R.	...	26, 33, 165, 170	Singh, M. N.	...	269
	...	283	Singh, Mahabeer	...	59
Sharma, V. P.	...	382	Singh, Mahant	...	269
Sharma, Y. P.	...	210	Singh, Maninder	...	59
Shedha, M. D.	...		Singh, Mohit	...	269

Singh, Narendra	...	227	Srivastava, M. P.	284, 275, 285	
Singh, Narendra	...	272	Srivastava, S. K.	...	267
Singh, Om	...	580	Srivastava, S. L.	...	270
Singh, Rajendra	...	389	Srivastava, S. N.	...	80
Singh, R. A.	...	268	Srivastava, S. S. L.	...	266
Singh, R. D.	...	245	Subhash-Chander, M.	...	294, 298
Singh, R. H.	...	255	Sugha, S. K.	186, 226, 280	
Singh, R. K.	...	272	Suhag, K. S.	...	231
Singh, R. N.	197, 457, 513		Sultana, Abeda	...	259
Singh, R. P.	249, 277, 527		Sunder, S.	...	277
Singh, R. R.	...	269	Suryanarayana, Reddy	...	258
Singh, R. V.	...	272	Suryawanshi, A. P.	...	310, 311
Singh, Santokh	...	281, 284	Swarup, Gopal	...	1
Singh, S. B.	...	272	Swarup, J.	...	264, 270N.
Singh, Sher	...	278	Teltunde, R. M.	...	253, 302
Singh, S. J.	...	286, 293	Tewari, V. P.	...	116
Singh, S. N.	...	251	Thakare, R. H.	...	306
Singh, S. V.	...	265	Thakur, D. P.	...	279
Singh, S. K.	...	368, 446	Thakur, R. N.	...	283
Singh, S. P.	197, 207, 457		Thakur, Vijay	...	520
Singh, Suresh	...	270	Tharanathan, R. N.	...	287
Singh, Surjeet	...	284, 285	Thareja, Ramesh Kumar	...	276
Singh, Vijai	...	561	Thete, M. R.	...	301
Sinha, A. K.	...	508	Thind, T. S.	...	53
Sinha, M. P.	...	150	Thombre, P. A.	...	301, 302
Sinha, N. P.	...	513	Tiagi, B.	...	496
Sinha, P. P.	...	229	Tiwari, B. K.	...	289
Sinha, R. K. P.	...	242	Tiwari, R. P.	...	290
Sinha, S. N.	...	251	Tripathi, N. N.	...	279
Sinha, S. Purnima	...	462	Tripathi, R. C.	...	273
Siradhana, B. S.	...	242, 404	Tripathi, S. C.	...	267, 290
Siva-Prasad, V.	...	247	Trivedi, P. G.	...	496
Sivasankaran, K.	...	290	Ullasa, B. A.	...	288, 291
Sobti, A. K.	234, 448, 451		Uppadhayay, K. D.	...	266
Sohi, H. S.	...	282	Urs, Shantha D.	...	262
Somani, R. B.	253, 300, 303		Vaidehi, B. K.	...	259
Somani, R. S.	...	302	Vani, A.	...	297
Somasekhara, Y. M.	...	504	Varshney, J. L.	...	254
Sood, A. K.	...	569	Vasantha-Kumar, H. L.	...	298
Sreenivasulu, P.	...	247	Veere, Gowda	...	297
Sridhar, T. S.	...	296	Venkateshwarlu, N.	...	77
Srinivasa-Rao, B.	...	254	Varma, A.	...	252
Srinivasa-Rao, G.	...	260	Verma, H. C.	...	580
Srivastava, K. D.	...	500	Verma, R. K.	...	568
Srivastava, K. J.	...	249	Vijay, B.	...	542
Srivastava, K. M.	...	491	Vijaya-Gopal, K.	...	253, 259

Vijayakumar, G. C.	...	453	Wangikar, P. D.	...	245, 308
Vir, Dharam	...	175	Wason, V.	...	276
Vishwa-Dhar	...	271, 571	Wells, B.	...	340
Vishwa-Karma, S. N.	...	273	Yadav, B. P.	...	431
Viswanath, S.	...	504	Yadav, J. P. S.	...	278
Vyanjane, N. T.	...	311	Yadav, M. D.	...	273
Wadia, K. D. R.	...	258	Yadav, M. N.	...	269
Wadibhasme, S. S.	...	243, 311	Yadava, T. P.	...	64
Wakade, R. A.	...	312, 313	Zipporah, Anna	...	258
Walia, Kum Kum	...	280	Zote, K. K.	...	307



## INDEX TO KEYWORDS

Aerial dissemination	...	583	<i>Brassica juncea</i>	...	64, 404
Aflatoxin	...	508, 547	Brix	...	345
Agaricales	...	150	<i>Bursera penicillata</i>	...	105
<i>Agaricus bisporus</i>	74, 473,	542	Calixin	...	85
<i>Albugo candida</i>	...	201	Catalase	...	64
Almond	...	436	Cauliflower	...	207, 231
<i>Alternaria</i> blight	...	231	Cauliflower wilt	...	389
<i>Alternaria brassicae</i>	...	64	Cell wall degrading		
<i>A. brassicicola</i>	...	64	enzymes	...	117
<i>Alternaria</i> leaf spot	...	207	Cellulases	...	77, 542
<i>Amanita</i>	...	150	<i>Cercospora arachidicola</i>	...	453
Amino acids	101, 186, 457,	580, 586	Charcoal rot	...	192
Anastomosis	...	368	Chemical control	59, 102, 229,	385
Antagonists	...	352	Chemical factors	...	460
Anthracnose	...	102, 372	Chickpea	...	48, 59, 576
Antiserum	...	13	Chickpea distortion		
<i>Aphanocladium album</i>	...	590	mosaic virus	...	340
Apple	...	113	Chilli	...	53, 108, 110
Apple scab	...	520	Chlamydospore	...	420, 460
Apricot	...	385	Chlorophyll	...	345
Aquatic fungi	...	564	<i>Cicer arietinum</i>	...	59
Artificial inoculation	...	469	CMV	...	487
<i>Ascochyta</i> blight	...	59	Cob husks	...	508
<i>Ascochyta rabiei</i>	...	48, 59	<i>Colletotrichum</i>	...	53
Ascomycete	...	568	<i>C. acutatum</i>	...	108
<i>Aspergillus flavus</i>	197, 457, 513,	547	<i>C. capsici</i>	...	102
<i>A. niger</i>	...	462	Compatibility system	...	222
<i>Aspergillus</i> species	...	451	Control	...	94, 110
Bacterial blotch	...	352	Copper oxychloride	...	579
Bark	...	568	Copper sulphate	...	579
Barley	...	574	<i>Coprinus cinereus</i>	...	427
Barrier crops	...	349	<i>Cosmos sulphureus</i>	...	438
Bean common mosaic virus...	...	434	Cotton	...	101, 583
Bell pepper	...	349	Cross inoculation	...	446
Berseem	...	589	Crystalline inclusions	...	491
Betelvine	...	401, 582	Cultural and chemical		
Biological control	...	352, 535	control	...	10
<i>Bipolaris spicifera</i>	...	582	Cultural variability	...	448
Black pepper	...	414	<i>Cyamopsis tetragonoloba</i>	...	496
Blister blight	...	226	Cytoplasmic cylindrical		
			inclusions	...	340

Damping-off	...	535	<i>Gonapodya</i>	...	218
Detection	...	213	<i>Gossypium</i>	...	464
Deterioration	...	96	Grain quality	...	571
Deuteromycotina	...	143	Grain yield	...	559
<i>Didymosphaeria</i>	...	361	Gram seeds	...	96, 98
Didymosphaeriaceae	...	361	Grassy shoot disease	...	561
Difolatan	...	207	Germination	...	175
Disease incidence	...	170, 442	Groundnut	...	234, 451, 453
Disruptive selection	...	553	Growth inhibition	...	472
Dot immunobinding	...	213	Guar	...	496
Downy mildew	...	372, 517	Guava wilt	...	116
<i>Drechslera oryzae</i>	...	553	Heat therapy	...	561
<i>Drosophila busckii</i>	...	462	<i>Helminthosporium</i>	...	574
Ear blight	...	571	Hemicellulases	...	542
Economic control	...	207, 451	Histochemistry	...	453
Edible mushrooms	...	427	Histopathology	...	105, 113, 453
Edifenphos	...	553	Host resistance	...	201
Effect of latex	...	462	Hot water treatment	...	234
Endoconidia	...	460	Hybridization	...	70
Endophyte	...	107	Hyphomycetes	...	143
Epidemics	...	85	Indian wheats	...	26
Epidemiology	...	531, 571	Infection rate	...	431
<i>Erithrina</i> sp.	...	210	Inhibitory agents	...	117
<i>Erysiphe</i>	...	100	Inoculation technique	...	574
<i>E. cichoracearum</i>	...	229	Inoculation	...	85
<i>E. graminis tritici</i>	...	33, 165	Inoculum pressure	...	175
<i>E. polygoni</i>	...	455	Inter-specific sterility	...	427
<i>Eugenia jambolana</i>	...	218	ISEM	...	13
<i>Exobasidium vexans</i>	...	226	Karathane	...	85
Extracellular enzymes	...	542	Karnal bunt	...	91, 222, 223
Extraction	...	500	Kharif maize	...	508
Field evaluation	...	94	<i>Lactarius</i>	...	156
Flexuous rod shaped virus...	...	491	Late blight	...	393
Follicolous fungi	...	214	Latex	...	156
French bean	...	434	Leaf area	...	345
Fruit rot	...	234, 462	Leaf rot	...	401
Fungal parasites	...	590	Leaf-baiting	...	375
Fungicides	...	94, 100, 117, 467	Lentil	...	580
Fungitoxicants	...	53, 80	Lesion types	...	53
<i>Fusarium lateritium</i>	...	582	Linearity	...	531
<i>F. moniliforme</i>	...	420	Loculoascomycetes	...	361
<i>F. semitectum</i>	...	589	Logistic	...	531
<i>F. solani</i>	...	389	Losses	...	487
Fusarium wilt	...	576, 580	Luteovirus	...	13
Germination	...	460	<i>Macrophomina phaseolina</i>	...	43, 192, 446, 527
<i>Glomus mosseae</i>	...	527	Maize	...	547, 575
Glume blight	...	186	<i>Mangifera indica</i>	...	20
Gompertz transformation	...	531			

Mating	...	70	Phoma leaf blight	...	234
Maturity period	...	508	<i>Phyllosticta glumarum</i>	...	186
<i>Meloidogyne incognita</i>	...	496	Physico-chemical		
Mesophilic fungi	...	542	alterations	...	382
Metalaxyl	...	408, 535	Physiologic races	...	33,48
Meteorological parameters	...	201	<i>Phytophthora drechsleri</i>		
Mixed cropping	...	414	f.sp. <i>cajani</i>	...	375
Mode of entry	...	113	<i>P. infestans</i>	...	393
<i>Monilinia</i>	...	113	' <i>P. palmivora</i> ' MF <sub>4</sub>		
Morphological differences	...	439	( <i>P. capsici</i> )	...	414
Multiple disease resistance	...	444	<i>P. parasitica</i> var. <i>piperina</i>	...	401
Mungbean	100, 496, 559,	579	Pigeonpea ( <i>Cajanus cajan</i> ),	...	375
			<i>Piper betle</i>	...	491
Mushroom	74, 352, 473,	590	Pith density	...	43
			<i>Plasmopara halstedii</i>	...	517
Mushroom cultivation	...	471, 591	Pleosporales	...	361
Mustard seeds	...	513	<i>Pleurotus eous</i>	...	591
Mycoflora	...	98, 547	<i>Pleurotus</i>	...	70, 471
Mycoplasma like			Pollen viability	...	487
organism	...	561	Polyphenol oxidase	...	64
Myrothecium leaf spot	...	101	Population and toxigenic	...	179
<i>Myrothecium roridum</i>	...	464	Post harvest diseases	...	385
<i>Neovossia indica</i>	222, 223,	500	Potato	...	393
<i>Neovossia</i> species	...	439	Potato leafroll virus	...	13
New hosts	...	438	Potato root	...	107
<i>Nigrospora sphaerica</i>	...	582	Potyvirus	...	10, 340
Nodulation	...	467	Powdery mildew	26, 85, 100,	
Nutrition supplementation	...	74		170, 217, 229,	
Nutritional application	...	401			445
<i>Odina woodier</i>	...	20	Pre-symptom activity		
<i>Oidium nyctaginacearum</i>			of fungicide	...	520
sp. nov.	...	217	Preharvest	...	508
Oil quality	...	404	Primary infection focus	...	393
Paddy straw	...	471	Progression and spread	...	414
Parwal	...	229	<i>Prunus dulcis</i>	...	436
Pathogenic potential	...	179	<i>Pseudocercospora</i>	...	20
Pathotypes	...	464	<i>Pseudomonas</i>		
Pea	...	85, 455, 469	<i>solanacearum</i>	...	438
Peach	...	382	<i>P. tolaasii</i>	...	352
Peroxidase	...	64	<i>Psidium guajava</i>	...	116
Perpetuation	...	455	<i>Puccinia arachidis</i>	...	531
Persistence	...	408	Purification	...	13
<i>Pestalotia heterocomis</i>	...	105	<i>Pyrenula corticola</i>	...	568
<i>Pestalotiopsis</i>	...	234	<i>Pythium aphanidermatum</i>	...	408
<i>Phaeoramularia</i>	...	143	Radish seeds	...	197, 457
Phenol oxidases	...	542	<i>Ramularia gossypii</i>	...	583
Phenols	...	96, 186	Remote sensing	...	201
<i>Phoma destructiva</i>	...	110	Residual fungicide	...	579



Resistance	...	26, 101	Sunflower	...	517
Resistant	...	43, 372	Susceptible	...	43
Resistant cvs	...	431	Systemic fungicides	...	473
Resistant sources	...	91, 434	Taxonomy	...	143
Respiration	...	197	Tea	...	226
Rhizobium	...	467	Technique	...	469
Rhizoctonia	...	234, 448	Teliospore germination	...	223
<i>R. bataticola</i>	...	446	Teliospores	...	439, 500
<i>R. solani</i>	...	80, 368, 589	Terrestrial phycomycete	...	218
<i>Rhizophydium</i>	...	564	Thermophilic fungi	...	77
Rhizopus rot	...	385	<i>Thielaviopsis paradoxa</i>	...	460
Rhizosphere fungi	...	586	<i>Tilletia caries</i>	...	569
Rice	...	94	<i>T. foetida</i>	...	569
Rice tungro virus	...	431	Tomato	...	462
Root exudate	...	513	Tomato mosaic	...	487
Root exudates	...	586	<i>Taphrina deformans</i>	...	382
Root rot	442, 527,	589	Translocation	...	408
Rust	...	372	<i>Trichoderma harzianum</i>	...	535
<i>Sclerotinia sclerotiorum</i>	...	469	Uniflagellate zoosporic		
Seed borne fungi	...	110, 404	fungi <i>Rhizophlyctis</i>	...	564
Seed transmission	...	375	Urd bean	...	102
Seed treatment	175, 408,	467	<i>Ustilago nuda</i>	...	90
Seed yield	...	442	Variability	...	53
Selective medium	...	375	<i>Venturia inaequalis</i>	...	520
Semi-arid crops	...	446	Vesicular-arbuscular		
Sesamum	...	442	mycorrhiza	...	527
Sheath blight	...	94, 368	Viability	...	197
Slow mildewing	...	26	<i>Vigna</i>	...	100, 464
Soil	...	500	<i>Vigna radiata</i>	...	496, 527
Soil amendment	...	442	Virulence	...	33
Soil factors	...	223	Virulence pattern	...	368
Sorghum cultivars	...	43, 192, 372,	Virulence structure	...	165
		444	Viruses	...	349
Sorghum leaf streak	...	213	<i>Volvariella volvacea</i>	...	427
Sorghum red stripe virus	...	10, 345	Weed fungi	...	427
Soybean	...	467	Wheat	...	91, 165, 170,
Spread	...	431			571
Stable resistance	...	90, 444	Wheat loose smut	...	90
Stalk juice yield	...	345	White rust	...	201
Stalk-rot	...	575	Wilt	...	210
Stalk water potential	...	192	<i>X. campestris</i> pv. <i>holcicola</i> ...	...	213
<i>Stenella celastrae</i> sp. nov....	...	214	<i>X. campestris</i> pv. <i>pruni</i> ...	...	436
<i>Streptomyces cyanoalbus</i> ...	...	563	Xylanase	...	77
Sugar	...	43, 186, 457,	Yellow mosaic virus	...	559
		586	Yield	...	487
Sugarbeet	...	80, 408, 535	Zoosporic fungus	...	218
Sulphur utilization	...	389			